# CERTIFICATION REPORT

# For

# NJCAT VERIFICATION

# Of

# CH2M HILL and Applied Sustainability, LLC (By-Product Synergy Process)

November 14, 2001

*New Jersey Department of Environmental Protection*
*Division of Science, Research and Technology*
*Office of Innovative Technology & Market Development*
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## Introduction

New Jersey Corporation for Advanced Technology (NJCAT) submitted a verification report to New Jersey Department of Environmental Protection (NJDEP) describing the By-Product Synergy (BPS) process of CH2M HILL and Applied Sustainability, LLC. As defined in the verification report, BPS is "The synergy among diverse industries, agriculture, and communities resulting in profitable conversion of by-products and wastes to resources promoting sustainability". The goal of CH2M HILL and Applied Sustainability, LLC is to promote joint commercial development to use wastes from certain companies as raw materials for other companies.

## Technical Performance Claim

Pursuant to NJCAT verification report, "By-Product Synergy (BPS), a facilitated interactive process involving a group of industries from diverse manufacturing sectors, has the potential to assist industries to discover new uses for their waste streams, primarily as feedstock for other industrial processes. When successful, BPS leads to measurable, verifiable environmental results in pollution prevention, waste reduction, energy efficiency and material use."

## NJCAT Description of By-Product Synergy (BPS) Process

The reuse of wastes as raw material substitutes or an additional feedstock component is not a new concept, and many waste exchanges in the United States have varying degree of success. To increase the degree of success, CH2M HILL and Applied Sustainability, LLC plans to use the BPS process to identify wastes from companies that can be used as feedstock in different processes through a coordinated wastes exchange procedure. When successful, the BPS process offers potential benefits such as savings related to waste disposal and energy consumption, reduced demand for more costly raw materials, and reduced environmental impact, especially from reduced transportation requirements.

The BPS process will benefit companies involved in the waste exchange if conducted according to establish guidelines. As stated by NJCAT "As economic systems, the efficiency and utility of waste exchanges are heavily dependent on information. Just as raw material characteristics must meet process specifications to ensure predictable quality, so too must by-products and wastes that might be substitutes or added materials. Without consistent quality of inputs, manufacturers would be faced with not only the prohibitive costs of comprehensive testing prior to use, they would also be faced with the potential of unpredictable process fluctuations". The sequence of events associated with the BPS process is Commitment, Awareness, Data Collection, Analysis, Implementation, and Evaluation. For adequate assessment, the allowable timeframe for each phase of the BPS process will range from several months to half a year, with additional time allowed for projects of greater complexity.

**Technical Performance Claim Evaluation by NJCAT**

According to the verification report, NJCAT states that, "Based on the evaluation of the results from independent interviews of personnel involved in field demonstrations of projects that were developed from the BPS process as well as other related documentation including that provided by the Applicant, it appears that sufficient evidence/data are available to support the Applicant's Claim".

**NJDEP Certification of BPS Process**

In accordance with the overall verification/certification process, as outlined in the New Jersey Environmental and Energy Technology Verification (EETV) Act at N.J.S.A. 13:1D-134, a technology or process developed to provide a net environmental benefit qualifies for a certification from NJDEP. The EETV Act encourages the commercial development and use of new technology-based environmental and energy related products, services and systems, in the State, that abate and prevent environmental pollution, and promote energy conservation in the most cost-effective and environmentally efficient manner. Furthermore, as required by the EETV Act, before receiving a certification from NJDEP, New Jersey Corporation for Advanced Technology (NJCAT) must complete a verification of the technology or process in accordance with its "Technology Verification Program General Verification Protocol". NJCAT submitted a verification report, which documents that the performance claim was satisfied and the BPS process of CH2M HILL and Applied Sustainability, LLC can produce a net environmental benefit.

After reviewing the potential benefits, as indicated in NJCAT verification report, NJDEP hereby **certifies** NJCAT verification report of the By-Product Synergy (BPS) process of CH2M HILL and Applied Sustainability, LLC to be used in the State of New Jersey. Also, based on the verification report, NJDEP feels that when instituted according to regulatory protocols and industry guidelines, use of a waste from a company, as a raw material for a different process, certainly has the potential to provide a net environmental benefit such as minimizing wastes, reducing energy usage, and reducing emissions of $NO_x$, $CO_2$, and $SO_2$. In general, the BPS process of CH2M HILL and Applied Sustainability, LLC can be beneficial to the State of New Jersey, since it has the potential to reduce the amount of hazardous wastes that are generated, and at the same time provide financial benefits to companies.

When implemented, in accordance with the EETV Act, certain benefits exist for an environmental technology or process that is verified by NJCAT. In accordance with the EETV Act, NJDEP can rely upon the NJCAT verification of the BPS process to establish contract provisions, protocols, policies, principles, and/or technical guidance for the permit processes as set forth in the Performance Partnership Agreement between NJDEP and NJCAT. Further, NJDEP will work with NJCAT to develop and implement outreach and educational seminars for the BPS process relating to NJDEP permitting processes, including Silver and Gold Track Performance Permitting.

**NJDEP Recommendations for Reciprocity Acceptance**

After receiving a certification from NJDEP, a technology or process that provides a net environmental benefit qualifies for acceptance through a reciprocity agreement by other Technology Acceptance Reciprocity Partnership (TARP) States. This reciprocity agreement defines a process whereby California (CA), Illinois (IL), Massachusetts (MA), New Jersey (NJ), New York (NY), Pennsylvania (PA), and Virginia (VA) adopted a common pathway for the reciprocal evaluation, acceptance and approval of environmental technologies. The TARP States have developed Tier II protocols to provide the necessary guidelines for developing technology or processes that will be beneficial to the environment.

If CH2M HILL and Applied Sustainability, LLC seeks reciprocity acceptance by other TARP States for an individual by-product synergy of the overall BPS process, then a quantitative evaluation, pursuant to the guidelines of the respective Tier II protocols must be completed. Presently, the TARP States have finalized the Beneficial Use Determination (BUD) protocol, and plans to develop a Pollution Prevention (P2) protocol. In general, quantification criteria may include, but not limited to, mass and energy balances, savings, and net environmental benefit analyses.